

This listing of the claims will replace all prior versions and listings of claims in the application:

LISTING OF THE CLAIMS

Claim 1 (currently amended). An anastomosis stent for insertion into an opening in a lumen of a vessel or tissue of a patient, comprising:

a first terminus;

a second terminus;

an opening at each terminus; and

a primary lumen providing fluid communication between the openings at the first and second termini,

wherein at least one of the first and second termini is sized to be inserted into an opening in a vessel of ~~the~~ patient, ~~and the stent is resorbable by a patient within a time period in the range of about a few minutes up to about 90 days, and the stent is comprised of a material that is resorbable by the patient in about a few minutes up to about 90 days and that is~~ selected from the group consisting of: frozen physiologic saline; polyethylene glycol chemically conjugated to a naturally occurring compound; and a conjugate of collagen and a synthetic hydrophilic polymer.

Claim 2 (original): The stent of claim 1, wherein the primary lumen is substantially straight.

Claim 3 (original): The stent of claim 1, wherein the primary lumen is curved, bent, or both.

Claim 4 (original): The stent of claim 1, wherein at least one of the first and second termini is tapered or shaped.

Claim 5 (original): The stent of claim 1, further comprising a flange at one of the first and second termini.

Claim 6 (original): The stent of claim 1, wherein at least one of the first and second termini has a diameter of about 1 mm to about 10 mm.

Claim 7 (original): The stent of claim 6, wherein the diameter is about 1 mm to about 8 mm.

Claim 8 (original): The stent of claim 1, wherein the first and second termini have different diameters.

Claim 9 (original): The stent of claim 1, wherein the termini are located about 1 cm to about 5 cm apart.

Claim 10 (original): The stent of claim 9, wherein the termini are located at about 1.5 cm to about 4 cm apart.

Claim 11 (original): The stent of claim 10, wherein the termini are located about 2 cm to about 3 cm apart.

Claim 12 (original): The stent of claim 1, wherein at least one of the first and second termini is sized for anastomotic insertion into a blood vessel of the patient.

Claim 13 (original): The stent of claim 12, wherein the blood vessel is an artery.

Claim 14 (original): The stent of claim 13, wherein the artery is a coronary artery.

Claim 15 (original): The stent of claim 13, wherein the artery is the patient's aorta.

Claim 16 (original): The stent of claim 12, wherein the blood vessel is a vein of the patient.

Claim 17 (original): The stent of claim 1, further comprising a third terminus and a third opening at the third terminus, wherein the third opening is in fluid communication with the primary lumen through an intersecting lumen.

Claim 18 (previously amended): The stent of claim 17, wherein the primary and intersecting lumens intersect at a point closer to the first terminus than to the second terminus.

Claim 19 (original): The stent of claim 17 wherein the primary and intersecting lumens intersect perpendicularly.

Claim 20 (original): The stent of claim 17, wherein the primary and intersecting lumens intersect non-perpendicularly.

Claim 21 (original): The stent of claim 1, wherein the material is resorbable by the patient in about a few minutes to about ten days.

Claim 22 (original): The stent of claim 21, wherein the material is resorbable by the patient in about seven days to about ten days.

Claim 23 (original): The stent of claim 21, wherein the material is resorbable by the patient in about one day to about seven days.

Claim 24 (original): The stent of claim 23, wherein the material is resorbable by the patient in about one day to about two days.

Claim 25 (original): The stent of claim 1, wherein the material comprises frozen physiologic saline.

Claims 26 and 27 (canceled).

Claim 28 (original): The stent of claim 1, wherein the material is polyethylene glycol chemically conjugated to a naturally occurring compound.

Claim 29 (original): The stent of claim 28, wherein the naturally occurring compound is a protein.

Claim 30 (original): The stent of claim 29, wherein the protein is a collagenic material.

Claim 31 (original): The stent of claim 30, wherein the collagenic material is a gelatin.

Claim 32 (original): The stent of claim 30, wherein the collagenic material is selected from the group consisting of type I, type II, and type III collagens, and combinations thereof.

Claim 33 (previously amended): The stent of claim 28, wherein the naturally occurring compound is a polysaccharide.

Claim 34 (previously amended): The stent of claim 33, wherein the polysaccharide is selected from the group consisting of hyaluronic acid, cyclodextrin, hydroxymethylcellulose, cellulose ether, and starch.

Claim 35 (original): The stent of claim 28, wherein the naturally occurring compound is a glycosaminoglycan or a proteoglycan.

Claim 36 (previously amended): The stent of claim 28, wherein the polyethylene glycol has a molecular weight of about 100 to about 20,000 daltons.

Claim 37 (canceled).

Claim 38 (previously amended): The stent of claim 1, wherein the material is a conjugate of collagen and a synthetic hydrophilic polymer.

Claim 39 (original): The stent of claim 38, wherein the synthetic hydrophilic polymer is selected from the group consisting of polyethylene glycol and polyvinylpyrrolidone.

Claim 40 (original): The stent of claim 1, further comprising a tissue sealant on a surface thereof.

Claim 41 (previously amended): A method of anastomosis comprising the steps of:

- (a) inserting the first terminus of the stent of claim 1 through an aperture into the cavity of a physiologically functioning vessel of a patient, and the second terminus of the stent into a conduit, such that an interface is formed between the vessel and the conduit about the aperture; and
- (b) attaching the vessel to the conduit at the interface.

Claim 42 (currently amended): A method of anastomosis comprising the steps of:

- (a) inserting the first and second termini of the stent of claim 1 through an aperture and into a physiologically functioning vessel of a patient, and the third terminus of the stent into a bypass conduit, such that an interface is formed between the vessel and the bypass conduit about the aperture; and
- (b) attaching the vessel to the bypass conduit at the interface.

Claim 43 (original): The method of claim 42, wherein step (b) is carried out without need for a suture.

Claim 44 (original): The method of claim 42, wherein step (b) comprises (b') introducing a tissue sealant around or over the interface between the vessel and the bypass conduit.

Claim 45 (original): The method of claim 44, wherein the sealant comprises a collagenic material.

Claim 46 (original): The method of claim 45, wherein the collagenic material comprises a methylated collagen.

Claim 47 (currently amended): The method of claim 45, wherein the collagenic material is selected from the group consisting of ~~CIS, CSF~~ collagen in solution, colony stimulating factors, and combinations thereof.

Claim 48 (original): The method of claim 44, wherein the sealant comprises a polyethylene glycol.

Claim 49 (previously amended): The method of claim 48, wherein the polyethylene glycol is selected from the group consisting of polyethylene glycol di-succinimidyl glutarate, pentaerythritol polyethylene glycol ether tetra-succinimidyl glutarate, pentaerythritol polyethylene glycol ether tetra-succinimidyl glutarate, polyethylene glycol mono-succinimidyl succinate, polyethylene glycol mono-succinimidyl propionic acid, polyethylene glycol mono-succinimidyl succinamide, polyethylene glycol di-succinimidyl succinamide, polyethylene glycol di-epoxide, polyethylene glycol di-isocyanate, polyethylene glycol di-carbonyldiimidazole, pentaerythritol polyethylene glycol ether tetra-maleimidopropionamide, pentaerythritol polyethylene glycol ether tetra-malimidopropionate, polyethylene glycol di-amine, diglycero polyethylene glycol ether tetra-amine, pentaerythritol polyethylene glycol ether tetra-amine, polyethylene glycol di-sulfhydryl, pentaerythritol polyethylene glycol ether tetra-sulfhydryl, pentaerythritol polyethylene glycol ether, diglycerol poly(ethylene glycol) ether, combinations thereof, and copolymers thereof.

Claim 50 (original): The method of claim 44, wherein step (b) further comprises, after step (b'), (b'') crosslinking the sealant.

Claim 51 (original): The method of claim 44, wherein the tissue sealant is injected around or over the interface.

Claim 52 (original): The method of claim 44, wherein the tissue sealant is applied as a spray.

Claim 53 (original): The method of claim 42, wherein steps (a) and (b) are carried out simultaneously.

Claim 54 (withdrawn): A tissue plug for use in sealing an opening in a patient's tissue, comprising a solid object having a platen surface, which is adapted to cover the opening, contact the perimeter about the opening, or both; wherein the solid object is comprised of a material that is resorbable by the patient in a maximum of about 90 days and that is selected from the group consisting of: frozen physiologic saline;

polyethylene glycol chemically conjugated to a naturally occurring compound; and a conjugate of collagen and a synthetic hydrophilic polymer.

Claim 55 (withdrawn): The plug of claim 54, further comprising a tissue sealant on a surface thereof.

Claim 56 (withdrawn): The plug of claim 54, wherein the platen surface is supported by a pedestal structure having a pedestal lateral dimension.

Claim 57 (withdrawn): The plug of claim 56, wherein the platen surface has a lateral dimension equal to the pedestal structure lateral dimension.

Claim 58 (withdrawn): The plug of claim 56, wherein the platen surface has a lateral dimension greater than the pedestal structure lateral dimension.

Claim 59 (withdrawn): The plug of claim 54, wherein the platen surface is nonplanar.

Claim 60 (withdrawn): The plug of claim 54, wherein the platen surface is shaped to conform to the lumen surface of a blood vessel of the patient.

Claim 61 (withdrawn): The plug of claim 60, wherein the blood vessel is an artery.

Claim 62 (withdrawn): The plug of claim 61, wherein the artery is a coronary artery.

Claim 63 (withdrawn): The plug of claim 60, wherein the blood vessel is the patient's aorta.

Claim 64 (withdrawn): The plug of claim 54, wherein said resorbable material is selected from the group consisting of saline and blood plasma.

Claim 65 (withdrawn): The plug of claim 54, wherein the material is resorbable by the patient in about one day to about ten days.

Claim 66 (withdrawn): The plug of claim 65, wherein the material is resorbable by the patient in about seven days to about ten days.

Claim 67 (withdrawn): The plug of claim 65, wherein the material is resorbable by the patient in about one day to about seven days.

Claim 68 (withdrawn): The plug of claim 67, wherein the material is resorbable by the patient in about one to about two days.

Claim 69 and 70 (canceled).

Claim 71 (withdrawn): The plug of claim 54, wherein the material is polyethylene glycol chemically conjugated to a naturally occurring compound.

Claim 72 (withdrawn): The plug of claim 71, wherein the naturally occurring compound is a protein.

Claim 73 (withdrawn): The plug of claim 72, wherein the protein is a collagenic material.

Claim 74 (withdrawn): The plug of claim 73, wherein the collagenic material is a gelatin.

Claim 75 (withdrawn): The plug of claim 73, wherein the collagenic material is selected from the group consisting of type I, type II, and type III collagens, and combinations thereof.

Claim 76 (withdrawn): The plug of claim 71, wherein the naturally occurring compound is a polysaccharide.

Claim 77 (withdrawn): The plug of claim 76, wherein the polysaccharide is selected from the group consisting of hyaluronic acid, cyclodextrin, hydroxymethylcellulose, cellulose ether, and starch.

Claim 78 (withdrawn): The plug of claim 71, wherein the naturally occurring compound is a glycosaminoglycan or a proteoglycan.

Claim 79 (withdrawn): The plug of claim 71, wherein the polyethylene glycol has a molecular weight of about 100 to about 20,000 daltons.

Claim 80 (canceled).

Claim 81 (withdrawn): The plug of claim 54, wherein the material is a conjugate of collagen and a synthetic hydrophilic polymer.

Claim 82 (withdrawn): The plug of claim 81, wherein the synthetic hydrophilic polymer is selected from the group consisting of polyethylene glycol and polyvinylpyrrolidone.

Claim 83 (withdrawn): A method of sealing an opening in a patient's tissue comprising the steps of:

- (a) positioning the plug of claim 54 in relationship to an opening in a patient's tissue, such that the plug covers the opening, contacts the perimeter about the opening, or both, thereby forming an interface between the plug and the tissue; and
- (b) adhering the patient's tissue to the plug to form a closure.

Claim 84 (withdrawn): The method of claim 83, wherein step (b) comprises (b') introducing a tissue sealant around or over the interface.

Claim 85 (withdrawn): The method of claim 84, wherein the sealant comprises a collagenic material.

Claim 86 (withdrawn): The method of claim 85, wherein the collagenic material is a PEG-collagen.

Claim 87 (withdrawn): The method of claim 84, wherein the sealant comprises polyethylene glycol.

Claim 88 (withdrawn): The method of claim 84, wherein step (b) further comprises, after step (b'), (b'') crosslinking the sealant.

Claim 89 (withdrawn): The method of claim 84, wherein the tissue sealant is applied through injection.

Claim 90 (withdrawn): The method of claim 84, wherein the tissue sealant is applied as a spray.

Claim 91 (withdrawn): The method of claim 83, wherein steps (a) and (b) are carried out simultaneously.

Claim 92 (withdrawn): The method of claim 83, further comprising, after step (a), (b') placing additional tissue in contact with the plug, such that the plug is interposed between the additional tissue and the tissue associated with the opening.

Claim 93 (withdrawn): The method of claim 92, further comprising, after (b'), adhering the additional tissue to the tissue associated with the opening.

Claim 94 (currently amended): A sutureless method of anastomosis comprising the steps of:

(a) providing a stent comprising a first terminus, a second terminus, a third terminus, and an opening at each terminus that fluidly communicate with each other through the interior of the stent, wherein the stent is resorbable by a patient within a time period of about a few minutes up to about 90 days and is comprised of a material ~~that is resorbable by a patient in up to about 90 days and that is~~ selected from the group consisting of: frozen physiologic saline; polyethylene glycol chemically conjugated to a naturally occurring compound; and a conjugate of collagen and a synthetic hydrophilic polymer;

(b) inserting the first and second termini of the stent through an aperture into a cavity of a physiologically functioning vessel of a patient, and the third terminus of the stent into a bypass conduit, such that an interface is formed between the vessel and the bypass conduit about the aperture; and

(c) applying a tissue sealant at the interface to attach the conduit to the vessel.

Claim 95 (withdrawn): A sutureless method of sealing an opening in a patient's tissue comprising the steps of:

(a) providing a plug comprised of a material that is resorbable by the patient in a maximum of about 90 days and that is selected from the group consisting of: frozen physiologic saline; polyethylene glycol chemically conjugated to a naturally occurring compound; and a conjugate of collagen and a synthetic hydrophilic polymer;

(b) positioning the plug in relationship to an opening in a patient's tissue, such that the plug covers the opening, contacts the perimeter about the opening, or both, thereby forming an interface between the plug and the tissue; and

(c) applying a resorbable sealant at the interface to form a closure.

Claim 96 (currently amended): A sutureless method of anastomosis comprising the steps of:

(a) providing a stent comprising a first terminus, a second terminus, a third terminus, and an opening at each terminus that fluidly communicate with each other through the interior of the stent, wherein the stent is resorbable by a patient within a period of about a few minutes up to about 90 days and is comprised of material ~~that is resorbable by a patient in up to about 90 days~~ selected from the group consisting of frozen physiologic saline, polyethylene glycol chemically conjugated to a naturally occurring compound, and a conjugate of collagen and a synthetic hydrophilic polymer;

(b) inserting the first and second termini of the stent through an aperture into a cavity of a physiologically functioning vessel of a patient, and the third terminus of the stent into a bypass conduit, such that an interface is formed between the vessel and the bypass conduit about the aperture; and

C4 (c) applying a tissue sealant at the interface to attach the conduit to the vessel such that the interface exhibits a tensile strength of at least about 1.3N/cm^2 .

